## APPLYING THE HUMAN FACTORS TAXONOMY

#### THE PEOPLE

#### **Physiological Condition**

The group of factors associated with a person's physical health, composition, or condition as it relates to their ability to effectively and safely perform their job.

#### **Psychological Condition**

The group of factors associated with a person's mental health, psychosocial condition, psychological well-being, or emotional state as it relates to their ability to effectively and safely perform their job.

#### **Awareness**

The group of factors associated with a person's mental process of knowing or perceiving information or critical cues as it relates to their ability to safely and effectively perform their job or make decisions

#### Competence

The group of factors associated with the level or degree to which an individual conducts an action, makes a decision, or performs a task or function in connection with their job or duties. Typically, these duties are associated with specific training, education, experience, or qualifications, and are often measured to an organizational standard.

#### **Intentional Deviation**

When a person intentionally deviates from a commonly known policy, rule, procedure or regulation. \*(Rule violations by supervisors are addressed in the Leadership Domain under Supervision of Work - Supervisory Control and Compliance)

## Character & Personality

The group of factors associated with the moral, ethical, and behavioral qualities of an individual where character refers to the moral and ethical standards that make up the inner nature of a person, and personality refers to the individual's patterns of thoughts, feelings, and behaviors consistently exhibited over time.

## **Fatigue**

The group of factors associated with an individual's ability to properly and effectively rest and sleep. This includes physical fatigue, mental fatigue, and chronic fatigue.

## **Team Interactions**

The group of factors associated with how team members interact with one another to accomplish a task or goal. Task Delegation: The ability of team members to actively manage the distribution of individual tasks within the team to prevent the overloading of any team member.

## Team Composition

The group of factors associated with the design, configuration and structure of a team or a crew.

#### **THE JOB**

#### **Work Preparation**

The group of factors associated with quality, scope, and availability of the organization's establish guidance. This includes specified and implied guidance; verbal and written guidance; procedures, rules, policies, regulations, checklists, and any other organizational protocol used to guide employee decisions and behavior.

#### **Real-Time Risk Assessment**

The group of factors associated with hazard identification and risk mitigation during operations.

#### **Operating Procedures**

The group of factors associated with the quality and timeliness of task preparation and planning. The level or degree to which the individual and crews prepare to conduct an assigned task. Preparation includes filling out and signing permits, coordinating for special PPE, Coordinating with other teams or contractors, and conducting pre-job risk assessments and safety meetings.

#### **Equipment Condition/Performance**

The group of factors related to the equipment's function, serviceability, and performance.

#### **Equipment Use**

The group of factors associated with how the tool or equipment is used to perform a job.

#### Interface

The group of factors related to the interaction of the operator and the equipment. This includes ergonomic issues; instrumentation and feedback systems; the location and design of controls and switches; incompatible or poorly designed workspaces; and issues with automation.

## The Natural Environment

The group of factors related to the natural surroundings and environmental phenomenon around the work space or vehicle that affect decisions and actions.

## Workspace

The group of factors associated with the man-made distractions, obstructions or layout of the work space or vehicle that interfere with an individual or crew in the function of their duties.

## Communication

The group of factors associated with the act of imparting or exchanging information, data, ideas, or feelings from one person or team to another.

## **Operational / Process Information**

The information related to the workplace, facilities, equipment, tools, products, supplies, or any other aspect of the work environment that is either necessary for the individual or team to safely and effectively complete their job, or is mandated to be available by a regulatory body.

## Channel

The group of factors related to the method of sharing or transmitting information that is relevant and critical for safe and effective operations.

## **Distribution Process**

The group of factors related to the quality, quantity and timeliness of essential or critical information provided to an operator, crew member, or decision maker.

#### THE LEADERSHIP

#### Job Planning

The group of factors associated with the quality and timeliness of task preparation and planning. The level or degree to which the supervisor prepares for the conduct of an assigned task, mission, or job. Planning includes the deliberate thought process and actions taken prior to the job where the aim is to help ensure successful, efficient, and coordinated execution of the task. Planning includes but is not limited to the following actions: Defining the goals and mission; preparing the team; coordinating with third-party operators or other entities; preparing equipment; coordinating permits and other paperwork; developing contingency plans; gathering information; planning for weather considerations; accounting for previous lessons learned; etc.

#### Work Oversight

The group of factors related to the level of planning, care, and scrutiny supervisors and leaders give to employees, contractors, and to how the work is being conducted.

#### Supervisory Risk Management

The group of factors associated with degree to which supervisors evaluate, mitigate and manage risk or approve risk assessments and action plans.

#### Supervisory Control & Compliance

The group of factors associated with a supervisor's compliance with instructions, policy, rules, and procedures while managing organizational assets or supervising tasks or personnel.

### Leading the Organization

The group of factors associated with the organization and leadership guidance of the business, operation, division, function, entity and workforce.

## Developing the Organization

The group of factors associated with the degree to which leadership trains its workforce and develops its capabilities, employees, and leaders.

## Managing Operations

The group of factors associated with how leadership manages how things get done within the organization.

## Workforce Enagagement

The group of factors associated with degree to which leaders in the organization elicit feedback, induce workforce engagement, and empower the workforce to be involved, make decisions and share in the responsibility of improving the organization.

#### THE ORGANIZATION

#### **Organizational Process & Structure**

The group of factors associate with organizational policies, processes and structure when those factors have a negative influence on decisions, actions, and performance within the organization.

## Personnel Selection, Placement, and Management

When personnel management process or policies directly or indirectly have an undesired influence on decisions, actions and performance in an organization.

## Regulation, Legislation, and Industry Standards

The group of factors related to how the organization manages and complies with Federal, State, and other governmental regulations, industry standards, and legal requirements.

#### **Asset Integrity**

The group of factors dealing with the quality and adequacy of equipment design, installation, change, and mechanical integrity.

#### **Resource Management**

The group of factors related to policies or processes dealing with organizational resources.

#### Program / Project Management

The group of factors associated with leadership's oversight and management of the organizations programs and projects.

## **Organizational Learning & Training**

The group of factors related to how well the organization creates or identifies learning opportunities and then transfers and retains that knowledge.

## Identify

The group of factors associated with how the members of an organization learn, share and adopt a common set of beliefs and thinking patterns related to the organization and its values.

## Functionality

The factors associated with how well the organization's culture aligns with the organization's objectives and the personalities of the leadership and workforce.





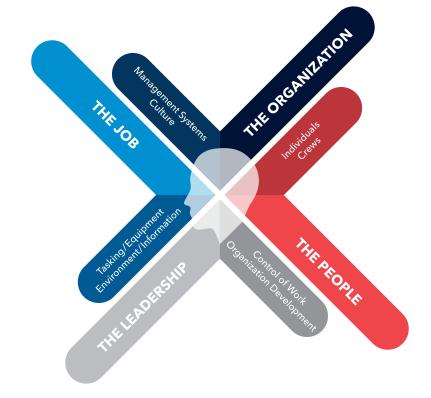
# DETERMINE THE ACTION FRAMEWORK TO DETERMINE WHAT HAPPENED

- Gather evidence
- Brainstorm key events
- Determine the timeline
- Map initial cause-effect relationship

CHEMICAL SPILL VALVE OPEN TAG NOT REMOVED COMMUNICATION PROCEDURE NOT FOLLOWED

## **IDENTIFY THE CRITICAL JUNCTURES**

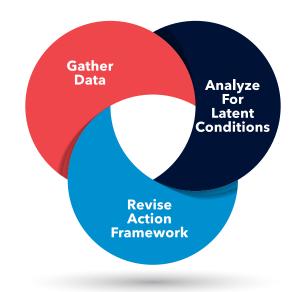
- Focus on DECISIONS and ACTIONS
- Look for where did things start to go wrong
- Look for performance errors and poor judgement



TIMELINE OF EVENTS CONDUCT INTERVIEWS

## **ANALYZE JUNCTURE FOR HIDDEN FACTORS**

- Apply Human Factors Taxonomy as guide
- What contributed to the poor decision or action
- What was supposed to happen compared to what actually happened
- Look for additional Critical Junctures



#### COMPLETE CAUSE-MAP AND CODE HUMAN FACTORS

- Add the newly identified causal factors to the cause-effect map
- Use the Human Factors Taxonomy to identify the specific Human Factors associated with your findings
- Apply taxonomy codes to findings for classification and trending analysis

